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A Case of Labor in a Woman WITH Spondylolisthetic Pelvis.

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A CASE OF LABOR IN A WOMAN WITH SPONDYLOLISTHETIC PELVIS.

BY F. H. LOMBARD, M.D.

Mrs. Nellie O., age, twenty-six years. Primipara. Of Irish parentage, born in Boston, where she has always lived. Father died of pneumonia. Mother, who became insane when Nellie was two years old, has been in the asylum at Worcester ever since.

Learned to walk during second year. When three years old while playing in the street was run over by a horse and carriage, the wheels passing directly across her body. Whooping-cough the only disease she has ever had.

Catamenia appeared at fourteen years; always regular; every four weeks; five days; moderate; considerable pain and discomfort always the day before her sickness appears.

I first saw the patient in October, 1883, when she was suffering from tonsillitis. She reported herself to be five months advanced in her first pregnancy, and asked if I would take care of her during her confinement. Her dwarfed stature attracted my attention, and obtaining her permission to measure the circumference of the pelvis, this was found to be 69 ctm. ($27\frac{1}{8}$ inches), the normal being 90 ctm. ($35\frac{1}{2}$ inches). Although a primipara whose abdominal walls had never been previously distended, the abdomen was so pendulous that in the upright position the umbilicus was on a level midway between the hips and the knees.

Her husband was told the risk there would be in allowing the pregnancy to go on to term, and was advised to have his wife enter the hospital.

To this she objected, but promised to consider the

matter and let me know. An abdominal belt with shoulder straps was improvised and, as subsequently learned, this was worn until within a few days of confinement.

The next day I visited the patient again and took accurate internal and external measurements of the pelvis. Two weeks later, having heard nothing from Mrs. O., I called to see her but found the family had disappeared, no one knew where.

March 3, 1884, four months later, I was summoned to the house in the rear of number 378 North Street, where I found Mrs. O. in labor.[1] It was then five o'clock in the afternoon and she had been having irregular pains since early morning. Examination showed an os the size of a silver quarter dollar, membranes intact, head presenting, and not yet engaged in the pelvis, though with difficulty moveable. Fœtal heart could not be heard; back of fœtus to mother's right. Mother's pulse 108, fairly strong. Temperature 99.3° in the axilla. The pains which had been strong and frequent all the afternoon were beginning to tell upon the mother, but during the hour following my visit, they had little or no effect upon the os. Fifteen grains of chloral were given by the mouth and the dose repeated twice at intervals of twenty minutes.

Mr. C. E. Taft, at that time a third year student, was sent for, and to him and to Mr. Howe I am indebted for valuable assistance in the subsequent care of the case. The failure of the strong pains to dilate the os, being evidently due to the great anterior obliquity of the uterus which kept both the fœtal head and the bag of waters from entering the os as a wedge, the patient was put to bed on her back, and from this time until the head had engaged in the pelvis (a space of twelve hours) the uterus was held in position and every effort made with each succeeding pain to force the head into the pelvic cavity.

[1] This was exactly 281 days from the afternoon of her marriage (May 26, 1883) on which date her last catamenia ceased.

During the night and following morning progress was slow but steady. The patient suffered a good deal from nausea and vomiting, but as her pulse, temperature, and general condition continued favorable there seemed to be no indication for active interference. Small quantities of brandy and tea were given at intervals through the night and morning. Hot carbolic (1 to 60) vaginal douches (110° F.) were given from a fountain syringe three times during the morning, with a view to assisting the dilatation of the cervix and to reducing the excessive œdema of the anterior lip which progressively increased with the advance of the head. At 11.10 A.M., when the os was about the size of a trade dollar, the membranes were accidentally ruptured during an examination. Two hours later, the os being fully dilated, forceps were applied (the patient refusing ether) and in thirty minutes a fully developed male child, stillborn, was delivered. All attempts to resuscitate the child failed; length 50½ ctm.; weight not taken. The uterus contracted well after delivery, but there was considerable hæmorrhage from the lacerated cervix and perineum, requiring the application of ice.

Five silk sutures were taken in the perineum which had been deeply torn to the right of the median line, the tear extending into the sphincter. Convalescence was slow, the patient not sitting up until the fourteenth day, and recovering her usual strength only at the end of two months. The pulse during the first fourteen days averaged 107, reaching its maximum, 132, on the evening of the third day.

The temperature did not fall below 100° F. during the first fortnight, averaged 101.5°, and reached its highest point, 103.2°, on the twelfth day.

Incontinence of urine lasted until the fourth day; incontinence of fæces until the fourteenth. Tympanites was a troublesome symptom until the fourth day, although a large amount of flatus was involuntarily expelled with every change in position.

The lochia were scanty throughout, chiefly purulent and stopped altogether on the sixth day; they were never offensive.

The uterus contracted slowly during the first four days, swinging from side to side high above the pubes, apparently affected by every change in position of the flatulent bowel. After the second involuntary dejection and the coincident disappearance of the tympanites on the fourth day, the uterus sought the middle line and its involution then progressed normally.

The body of the uterus was never abnormally tender to the touch, and by the fourteenth day the fundus had disappeared below the pubes. Extensive sloughs which subsequent examination showed to have been parts of the bruised and lacerated cervix came away from time to time with varying amounts of pus in washing out the vagina.

The upper perineal stitches sloughed through on the third day, while the lower ones, removed on the seventh, showed integumentary union in the lower half of the wound.

On the eighteenth day after delivery vaginal examination revealed: Partially healed perineum; about an inch and a quarter above the anus the tip of the little finger introduced into the rectum appears in the vagina. Uterus low in pelvis, slightly anteflexed, firmly contracted. Deep, left lateral laceration of cervix with extensive loss of substance.

The moderately high and even course of pulse and temperature is consistent with the pretty extensive suppuration which occurred, and shows that the pus had free outlet and that there was at no time septic infection.

Treatment: Consisted briefly of liquid and farinaceous diet, free use of brandy and tonic doses of quinine throughout. Ergot was given several times during the first three days, and opium was required once or twice. Turpentine in stupes and internally was given to relieve the tympanites.

Hot carbolic vaginal douches (1:60 at 110° F) were given twice a day, and a wad of absorbent cotton soaked in carbolic was kept constantly at the vulva, the swollen entrance to which was dusted twice a day with Pulv. Iodoform.

Nothing could have been more unfavorable than the hygienic surroundings of this patient.

A family of six adults occupied two small rooms and a closet in the second story of a wooden tenement in one of the worst slums of the city. A row of stinking privies resorted to by the whole neighborhood as well as by passers-by, stood in the yard below, — a stench-centre sufficient to contaminate the whole district. The lying-in room, into which no ray of direct sunlight ever fell, opened off the kitchen, and nearly all of the available space in it was occupied by the bed. To make matters worse, though with a view to making them better, the landlord had sent the plumbers on the day of Mrs. O.'s confinement to clean out the trap under the kitchen sink, in the midst of which process I found them on my first visit.

With this germ-laden condition of the atmosphere, and with an extensive suppurating surface ready for infection, we must either agree with Winckel (who does not hesitate to place a healthy, recently-delivered woman by the side of a case of puerperal septicæmia) that the atmosphere plays an insignificant rôle as a carrier of infection, or we must admit that the much-abused, vaginal douche occasionally performs an important service in prophylaxis.

A month after her confinement I again lost sight of the patient and did not see her again until February, 1885, when she came to the Dispensary complaining of backache, amenorrhœa and distress at each menstrual epoch.

Fæces had continued to be expelled through the vagina for six weeks after her confinement. Since then defæcation had been natural. Examination by the rectum showed complete closure of the recto-va-

ginal fistula, a circular cicatrix, the size of a three cent silver bit, marking its site in the posterior vaginal wall.

By the vagina very little could be seen or felt of the left half of the vaginal portion of the cervix; the uterus, normal in size, lay in the position of right latero-retroversion, and was slightly adherent. Last week Dr. C. M. Green kindly examined the patient with me at the Boston Dispensary, when the above condition of the pelvic organs was corroborated and the following measurements taken; except that they are more complete they do not differ essentially from those taken during pregnancy.

Weight 77 lbs.				
Height,	125	ctm.	= 4 ft.	$1\frac{1}{2}$ in.
Length of spine,	30	"	=	$11\frac{3}{4}$ "
Hips to Heels,	82	"	=	$32\frac{1}{4}$ "
Circ. of Thorax,	74	"	=	29 "
Circ. of Pelvis,	69	"	=	$27\frac{1}{8}$ "
Iliac Crests,	25	"	=	$9\frac{3}{4}$ "
Ant. Iliac Spines,	22	"	=	$8\frac{5}{8}$ "
Trochanters,	25.5	"	=	10 "
R. Ext. Oblique,	20	"	=	$7\frac{3}{4}$ "
L. " "	20	"	=	$7\frac{3}{4}$ "
Ext. Conj.	15	"	=	$5\frac{7}{8}$ "
Diag. "	9	"	=	$3\frac{1}{2}$ "
Height of Symphysis, (Inclination of Symphysis slightly less than normal),	5	"	=	$1\frac{3}{8}$ "
Conj. Vera, (i. e. from Symphysis to nearest point in spine),	7	"	=	$2\frac{3}{4}$ "
Post. Sup. Iliac Spines,	14.5	"	=	$5\frac{5}{8}$ "
Tubera Ischii,	10	"	=	$3\frac{7}{8}$ "

SUMMARY OF THE CASE:

Labor at term in a primipara 26 years old, with Spondylolisthetic Pelvis.

Duration of Labor 23 hrs. { First stage, $21\frac{1}{2}$ hrs. Second " 50 min. Third " 40 min.

Delivery with forceps of a fully developed, dead, male child. Extensive laceration with subsequent sloughing of cervix. Deep tear in the perineum which partially united, leaving a recto-vaginal fistula that subsequently healed of itself. Slow convalescence with moderately high and uniform temperature and pulse.

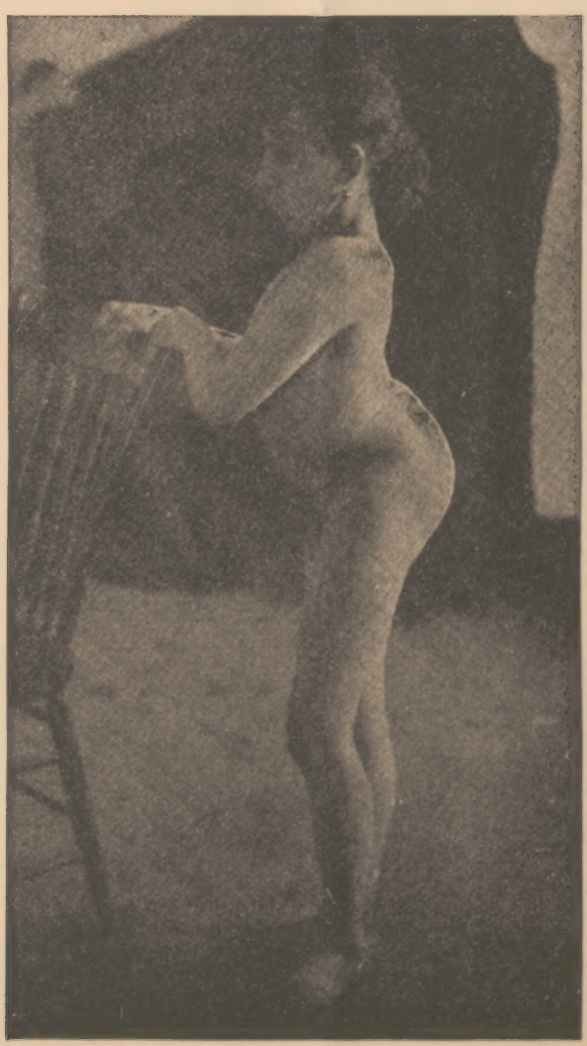
DIAGNOSIS OF THE SPONDYLOLISTHETIC PELVIS.[1]

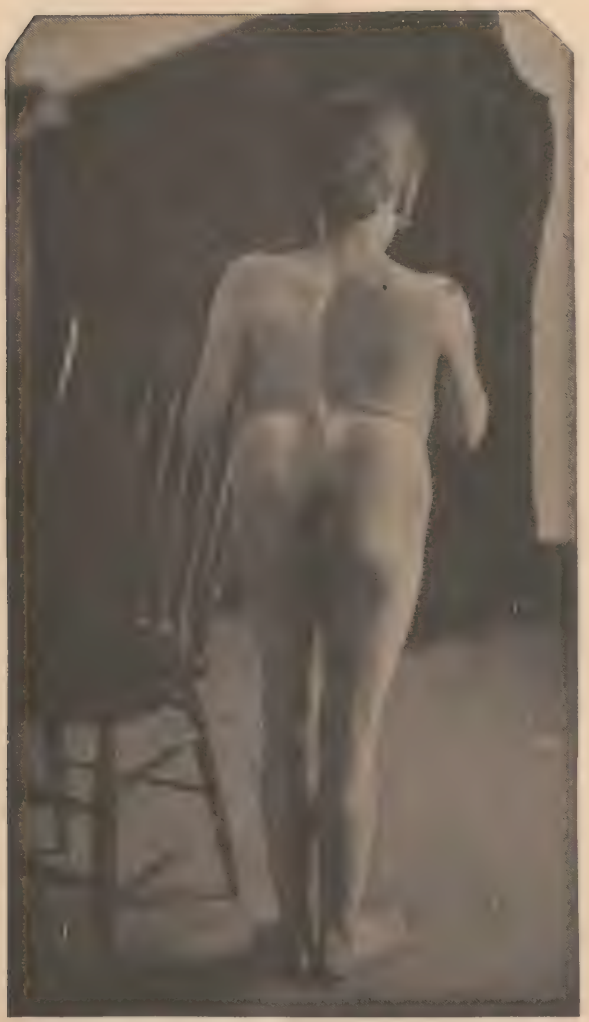
This form of contracted pelvis is rare. According to Schroeder,[2] nine such cases have so far been reported in which there was obstruction to delivery. In seven of these the peculiar deformity was confirmed by autopsy.

The chief feature consists in the separation of the body of the last lumbar from the first sacral vertebra and the consequent sinking of the lumbar spine into the pelvis, so that the inferior surface of the last lumbar rests on the anterior surface of the first sacral vertebra. The anterior surface of the last lumbar vertebra is directed downward; that of the fourth, third and second lumbar vertebræ forms an arch, the most prominent part of which being nearest to the symphysis, takes the place of the normal promontory. The result of this displacement is a considerable shortening of the antero-posterior diameter of the inlet of the pelvis.

The gradual sinking of the vertebræ is accompanied by an atrophy of the intervertebral cartilages and by a bony union between the lumbar and sacral vertebræ. The weight of the body conducted through the spine is now transmitted to the anterior surface of the sacrum instead of to its base, which tends to throw the pelvic centre of gravity forward. This is compensated for invariably by lessened[3] inclination of the pelvis, the anterior portion being slightly tilted upward. The

[1] Lusk pp. 491–493.
[2] Lehrbuch der Geburtshülfe, s. 576.
[3] Schroeder ; Loc. cit.





backward pressure upon the base of the sacrum forces the posterior iliac spines wide apart while the apex of sacrum is thrown forward, thus encroaching on the antero-posterior diameter of the outlet.

The traction upon the ileo-femoral ligaments approximates the tubera ischii, which, with the lateral displacement of the ilia due to the forcing back of the sacrum, results in a narrowing of the transverse diameter of the pelvis that becomes more marked as the outlet is approached.

Thus we have antero-posterior narrowing beginning above and extending below the inlet of the pelvis, together with a narrowing of the transverse diameter beginning in the cavity and becoming more marked toward the outlet (compare measurements and plates.)

ETIOLOGY.

The primary cause of this deformity is a separation of the articular surfaces of the last lumbar from the first sacral vertebra. This may be brought about by fracture of the transverse processes; caries of the transverse processes induced by traumatism, or by traction upon the articular ligaments sufficient to produce luxation (as from the too early carrying of heavy weights). In the case here reported the trouble dated apparently from the accident which occurred in the third year.

DIAGNOSTIC SIGNS.

Breisky[1] calls attention to the peculiar figure of persons with spondylolisthetic pelvis. The thorax and extremities are normal while the abdomen is unusually short and appears to have sunk between the prominent iliac crests.[2] The pelvic inclination is lessened, the crests of the ilia are wide apart and the gluteal region abnormally steep.

The point of division of the abdominal aorta into

[1] Breisky; "Archiv. f. Gynæc." Bd. ix. 1876, p. 1.
[2] See accompanying plates.

the common iliac arteries is displaced downward by the descent of the lumbar vertebræ and brought within easy reach of the examining finger introduced into Douglas' cul-de-sac. The pulsation of these vessels whose abnormal situation is held by Schroeder to be of extreme diagnostic value, could be distinctly felt in the case reported.

Marked cases of rachitis may result in the same prominent lumbar lordosis and descent of the spine into the pelvis. The differential diagnosis is easily established by absence in cases of true spondylolisthesis of signs of rachitis elsewhere, and by the fact, attention to which was first attracted by Breisky[1] that in pelvic deformity due to rachitis, the sacral lateral masses pass outward from the projecting promontory, while in spondylolisthesis one can feel at the pelvic inlet only the rounded prominence of a single vertebral body without laterally expanded wings.

PROGNOSIS.

The prognosis is bad in comparison with that in pelves contracted to an equal degree from other causes; because the deformity begins above and extends below the pelvic inlet instead of being limited to a comparatively short space.

TREATMENT

Generally consists in the induction of abortion or at term in Cæsarean section. Premature delivery was beyond all question the proper treatment to have followed in this case, and labor would have been induced at the seventh month or soon after, had not the patient disappeared from sight. Pregnancy having advanced to term, the choice lay between Cæsarean section, turning, delivery by forceps, and craniotomy. The mother's safety certainly did not demand Cæsarean

[1] Breisky; Loc. cit. p. 9.

section and the operation would have been justified only for the sake of securing a living child.

Turning would have been practicable, the patient having been seen before the head had engaged in the pelvis and the membranes being still intact.

The operation would, however, have been difficult, owing to the extreme anteversion of the uterus, and although to be preferred to the application of high forceps in the interest both of mother and child, it was by no means clear to me that it was my duty to turn, rather than to wait, and while watching the case carefully, give nature a chance.

I think the result justified my choice of the latter action. The deformity being one which involved not merely contraction at the inlet, but contraction beginning above and extending to the outlet, even had version been effected, the chance of delivering a living child would have been, I think, very small, while the dangers to the mother, from laceration of the soft parts, would have been as great, and those of septic infection greater than in application of forceps to the head after it had entered the cavity of the pelvis.

As for perforation: the obstruction to delivery was not sufficient to demand it, and as the death of the fœtus was not absolutely certain, perforation would not in this case have been justifiable.

Of the nine cases quoted by Schroeder: —

One died undelivered. In four Cæsarean section was performed. Three of these patients died from the operation: the fourth (the Paderborner case) survived a first Cæsarean section and having become pregnant again, succumbed to the second operation. In two, craniotomy was performed, and in two, artificial abortion was induced. Total, seven deaths: two recoveries.

So far as I know, this is the first case of spondylolisthetic pelvis of obstetric interest reported in this country.

NOTE.

Franz Neugebauer has published in the Archiv. für Gynækologie Bd. xix and xx, two extremely interesting articles on the subject of Spondylolisthesis, which have come to my notice since the above paper was written.

From these articles it appears that in addition to the nine cases collected by Schrœder, twenty-two other cases have been reported up to the present time, in seven of which the peculiar deformity was confirmed by autopsy, while in the remaining fifteen cases, the diagnosis rested upon clinical observation.

One of these last occurred in San Francisco, and was reported by Blaque.

Nothing short of a careful study of Neugebauer's articles (which will thoroughly repay any one interested in the subject) can give an idea of the extreme care and thoroughness with which they are prepared. His views, based upon the careful investigation of three new cases observed by him in Dresden and Leipzig, as well as upon a most thorough anatomical study of the Paderborner, Münich, Prague, Würzburg, Halle, and Breslau pelves, differ essentially from those of previous observers, and his investigations have thrown new light upon this hitherto obscure and puzzling deformity.

Neugebauer has proved conclusively the following points: —

That the deformity is not so rare as has been supposed.

That it may and does occur in both sexes, and is not confined to any particular age.

That it is an acquired deformity, occurring in extra-uterine life, without the concurrence of a primary dyscrasia or inflammatory disease of the bones (Rachitis, Osteomalacia, Caries, Osteitis).

That although it may occur in those early subjected to the carrying of heavy weights, and in women exposed to early and frequent pregnancies, yet in the majority of cases, it has a distinct traumatic origin, and is to be looked upon as a surgical deformity.

Finally, his anatomical studies have proved that the deformity consists "*in a forcible stretching or elongation of the interarticular (posterior) portion of the fifth lumbar vertebra, which in advanced cases goes on to a bending or fracture at this point*," and not in a separation of the lumbo-sacral articulation with a consequent sinking of the lumbar spine into the pelvis (olisthesis), as has been hitherto supposed.

Hence, the name Spondylolisthesis given to the deformity by Kilian, who first described it, though it be retained, is not strictly correct.

F. H. L.

Boston, August 28, 1885.